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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Paper No. 20

Application Number: 09/611,562
Filing Date: July 07, 2000
Appellant(s): KOBAYASHI ET AL.

Mr. Jiawei Huang
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 8/29/2003.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The brief does not contain a statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief. Therefore, it is presumed that there are none. The Board, however, may exercise its discretion to require an explicit statement as to the existence of any related appeals and interferences.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed. An amendment filed with the Appeal Brief under 37 CFR 1.116 has been entered.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The appellant's statement of the issues in the brief is correct.

(7) Grouping of Claims

The appellant's statement in the brief that certain claims do not stand or fall together is not agreed with because the appellant's brief does not provide reasons why claims 6 as group I, claims 8-9 as group II and claim 10-11 as group III stand or fall individually as set forth in 37CFR 1.192(c)(7) and (c)(8).

(8) Claims Appealed

A substantially correct copy of appealed claims 6-11 appears on pages 11 and 12 of the Appendix to the appellant's brief. The minor errors are as follows: the deletion of limitations in the amendment should be bracketed and the newly added limitations should be underlined. As regarding claims 6-11, the deletion of limitations of "/", "coil" or "coils" were not bracketed but crossed out which causes the scope of the claim indefinite since it is not clear if applicant is claiming the plus sign "+" in place of the "/" in the original claim.

(9) Prior Art of Record

5755281	KANG ET AL.	5-1998
5975199	PARK ET AL.	11-1999

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 6,8 and 10 are rejected under 35 U.S.C. 102(b). This rejection is set forth in prior Office Action, Paper No. 17. As stated therein, claims 6, 8 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Kang et al. (US 5,755,281). Kang discloses (figure 10) a heat exchanger comprising a heat transfer tube (30) penetrate through a row of multiple plate-shape heat transfer fins (20); air (A) is supplied orthogonally to the heat transfer tube; the heat transfer fin is partitioned in at least one fin unit in which arrays of slits are arranged in a row. As regarding claim 6, the formula:

$Ws >= (1- 0.1(6-N))Wf/(2N+1)$, can be rearranged as

$Ws/Wf >= (1-0.1(6-N))/(2N+1)$

Based on the relative geometrical relationship of figure 10(a), the ratio between the width of the slit to the width of the fin is $Ws/Wf=0.067$. Therefore, as long as N or number of slit array

on the fin is greater than 8.2, the formula is satisfied. Kang discloses (figure 9) that the fin has about 10 slit arrays. Therefore, the formula is satisfied. Also based on the relative geometrical relationship of figure 10(a), the ratio between the width of the slit and spacing between two slits to the diameter of the tube (30) are the same, which is approximately 0.22. This ratio is within the claimed range 0.17-0.29 and 0.18-0.5 of the invention. With regarding applicant's argument that it is improper to use proportion of the elements in the drawing, has been very carefully considered but is not deemed to be persuasive. It has been stated in rule 37 CFR 1.84. (k) (3) of the MPEP that "Elements of the same view must be in proportion to each other, unless a difference in proportion is indispensable for the clarity of the view". The examiner has taken the relative geometrical relationship of the Ws, Wf and spacing between two slits from the same view of figure 10. Therefore, the measured ratio is considered to be readable on the claimed range.

Claims 7, 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kang in view of Park et al. (US 5,975,199). Kang discloses substantially all of the claimed invention as discussed above except for the limitation that the tube has a diameter of about 7 mm. Park discloses (figure 1 and column 4, line 66- column 5, line 4) a heat exchanger that has coil (2) with a diameter of 7mm been used in industrial application to make a heat exchanger. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Parker's teaching in Kang's heat exchanger to make the heat exchanger.

(11) Response to Argument

Appellant's arguments that the examiner has solely relied on his measurement of Fig. 10 of Kang to anticipate the claimed invention including the claimed formula and claimed ratio

between the width of the slit and the spacing between two slits to the diameter is improper, have been very carefully considered but are not deemed to be persuasive. As stated in the Final Ground of Rejection, based on the relative geometrical relationship of Kang's figure 10 (a), the relative proportions of the features such as the ratio between the width of the slit (Ws) to the width of the fin (Wf) and the ratio between the width of the slit and spacing between two slits to the diameter of the tube are obtained and meet the claim limitations. The examiner disagrees with appellant's argument directed toward Hockereson-Halberstads, Inc. V. Avia Group Int'l, Inc and In re Wright. The examiner has not relied on any specific/particular size of an element in Kang's figures but has only relied on Kang's figure 10(a) to disclose the relative proportions between the width of slit, width of fin, spacing between two slits and the diameter of the tube (emphasis added) as he is permitted to do as stated in In re Mraz 173 USPQ and Vas-Cath Inc. V. Mahurkar 19 USPQ 2d. See for example in re Mraz that the description for the purposes of anticipation can be by drawing alone as well as by words in which case an angular relative proportion was measured on the drawing despite the fact that the specification says nothing about the angle to read on the appellant's claimed range of angularity. The above two citations permit drawings to show relative relationship between elements. This is just what the examiner has done. The examiner has only relied upon the relative relationship between the width of slit, width of fin, spacing between two slits and the diameter of the tube.

Appellant's further argument that reference to Park can not cure the specific deficiencies of Kang has been very carefully considered but is not deemed to be persuasive because the examiner relied upon Park only to disclose a tube with a 7 mm diameter but not to teach the claimed ratios since Kang already anticipated the claimed relative proportions.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

TD

Tho Duong
October 17, 2003

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